BA Project Report – Part A

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INF80014 – Business Analytics and Visualisation

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Executive Summary

This report looks at EON's sales figures for cars from 2019 to 2024 and highlights key insights and suggestions for making smart decisions. The study shows that people strongly prefer automatic gears to manual ones, and that sales of both types will go down in 2023. After the United States, the Netherlands, and then Indonesia, the Netherlands had the most nett sales in 2024. The way sales are going, hatchbacks are more popular in North America, SUVs are more popular in Asia, and both cars and SUVs are more popular in Europe.

Top games like Blizzard and CityScape made a lot of money, which shows that they were priced fairly. Performance differences by region show that marketing strategies need to be more specifically customised. Some of the suggestions are to make more hatchbacks available in North America, more SUVs for Asia, and a wider range of products in Europe. To keep EON competitive in the global market and maximise growth, it will be necessary to create customised regional plans.

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Introduction

Overview of the Report

This report analyses a dataset to provide significant insights that can aid in problem-solving and enhance decision-making. Through data analysis, we can reveal trends, patterns, and valuable insights that will inform future actions and initiatives. The report comprises comprehensive analysis, graphical illustrations of the data, and pertinent findings that align with our objectives.

Purpose of the Analysis

The purpose to perform this analysis is to gain a deeper comprehension of the data and make more informed decisions based on its insights. Our objective is to determine the relationships between various aspects and utilise this knowledge to enhance processes or identify novel prospects. The insights will help us focus on what really matters, making it easier to achieve better results.

Target Audience

The report is created for EON's top-level executives, including the CEO, CFO, COO, and CMO, to assist them in making strategic decisions. It specifically focuses on areas such as profitability, cost management, and market performance. Additionally, it provides support to finance, sales, operations, and marketing leaders by offering valuable information on product demand, cost trends, and consumer preferences. Financial teams will gain advantages from using dashboards that monitor margins and sales data, while analysts and business intelligence specialists can utilise data visualisation to uncover enhancements in operations. The objective is to facilitate well-informed choices and improve EON's overall efficiency.

Overview of EON & the Automobile Industry

EON is a major player in the automotive industry, specialising in the design, production, and distribution of vehicles. The company's business model includes vehicle manufacturing, marketing, and after-sales services. EON differentiates itself by focusing on innovation and quality, serving to several market segments ranging from high-end to affordable vehicles.

The automobile industry is characterised by its rapid evolution and intense competition. A variety of models, including direct sales and dealerships, are employed to

design, manufacture, and market vehicles. Data is essential for the improvement of operational efficiency, the comprehension of market trends, and the preferences of customers.

Data Quality Assessment

The dataset was extensively evaluated for quality that takes important factors such correctness, completeness, consistency, and relevance to guarantee that the insights and analysis are based on trustworthy data (Gupta, 2022).

Accuracy

The dataset was examined for errors and anomalies, with a particular emphasis on critical fields such as vehicle identification numbers (VIN), sales data, and country names. Ensuring that the data accurately reflects the real-world information it represents, duplicates and incorrect values were identified and corrected.

Consistency

To eliminate discrepancies, inconsistent entries in fields such as "Model," "Transmission," and "Country of Sale" were standardised and grouped. It is essential to maintain this consistency to facilitate meaningful analysis and comparability across various data segments.

Completeness

Missing or incomplete data were assessed, and no substantial voids were identified that could significantly impact the analysis. Robust insights have been achieved by ensuring that all essential elements necessary for analysis and visualisation were sufficiently filled.

Relevance

All fields included in the dataset were deemed relevant to the objectives of the analysis. Irrelevant or redundant information was excluded to maintain focus on the core variables that influence business decisions.

Data Integrity

During the cleaning process, care was taken to ensure that no critical data linkages (for example, between sales and tariff calculations) were broken. Additional checks were conducted to validate numbers such as gross sales and after-tax revenue.

In conclusion, the data provided is of high quality, and the analysis and insights delivered in subsequent parts are based on this clean, consistent, and correct dataset (Gupta, 2022). The appendix contains detailed data wrangling steps for additional reference.

Analysis

**Insight 1 - Automatic VS Manual Transmission Car Sales**
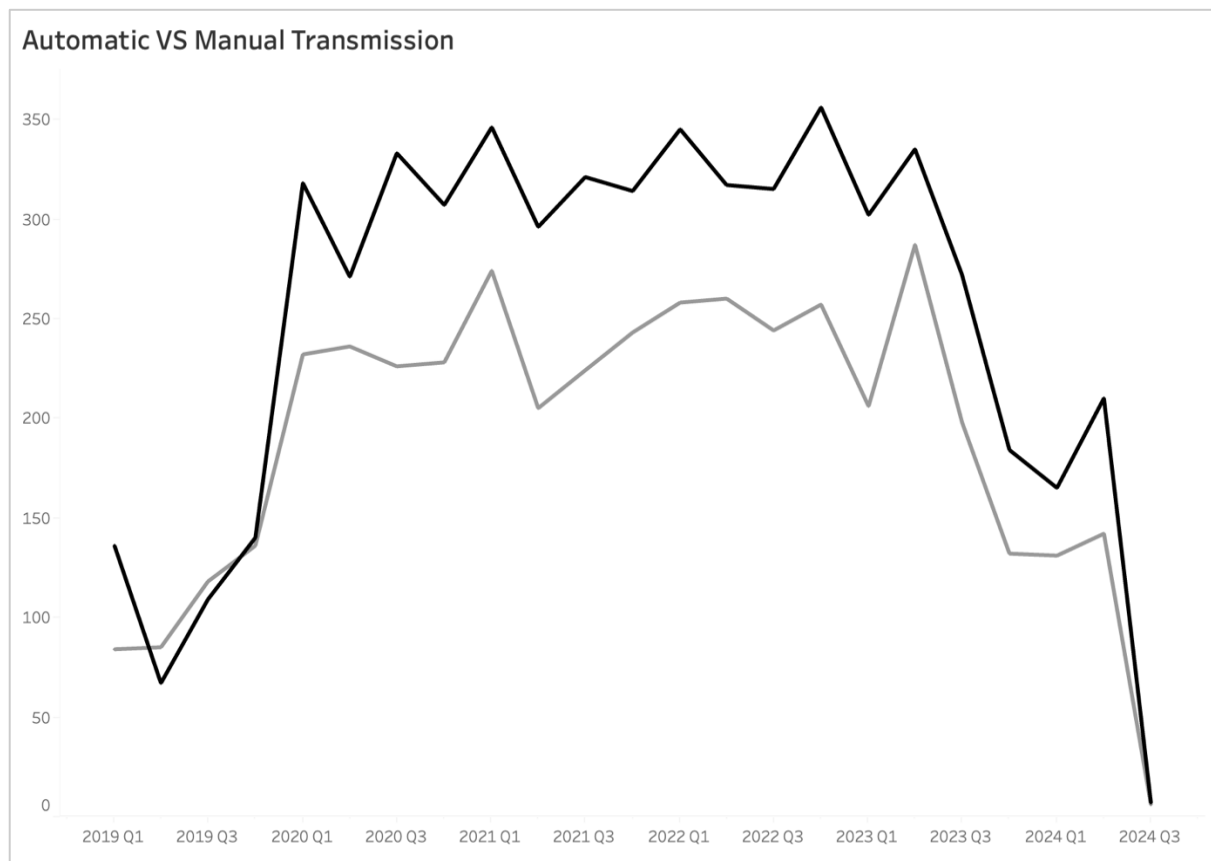
From 2019 to 2024, automatic transmission sales consistently exceeded those of manual transmissions. Both categories experienced a gradual increase until 2022, at which point they experienced a precipitous decline in 2023. The decrease was more pronounced for manual vehicles, which underscores a growing consumer preference for automatic automobiles and potential market shifts (Arthur, 2024).

Insight 2 - 2024 Net Sales performance by Country

2024 Net-Sales performance by Country
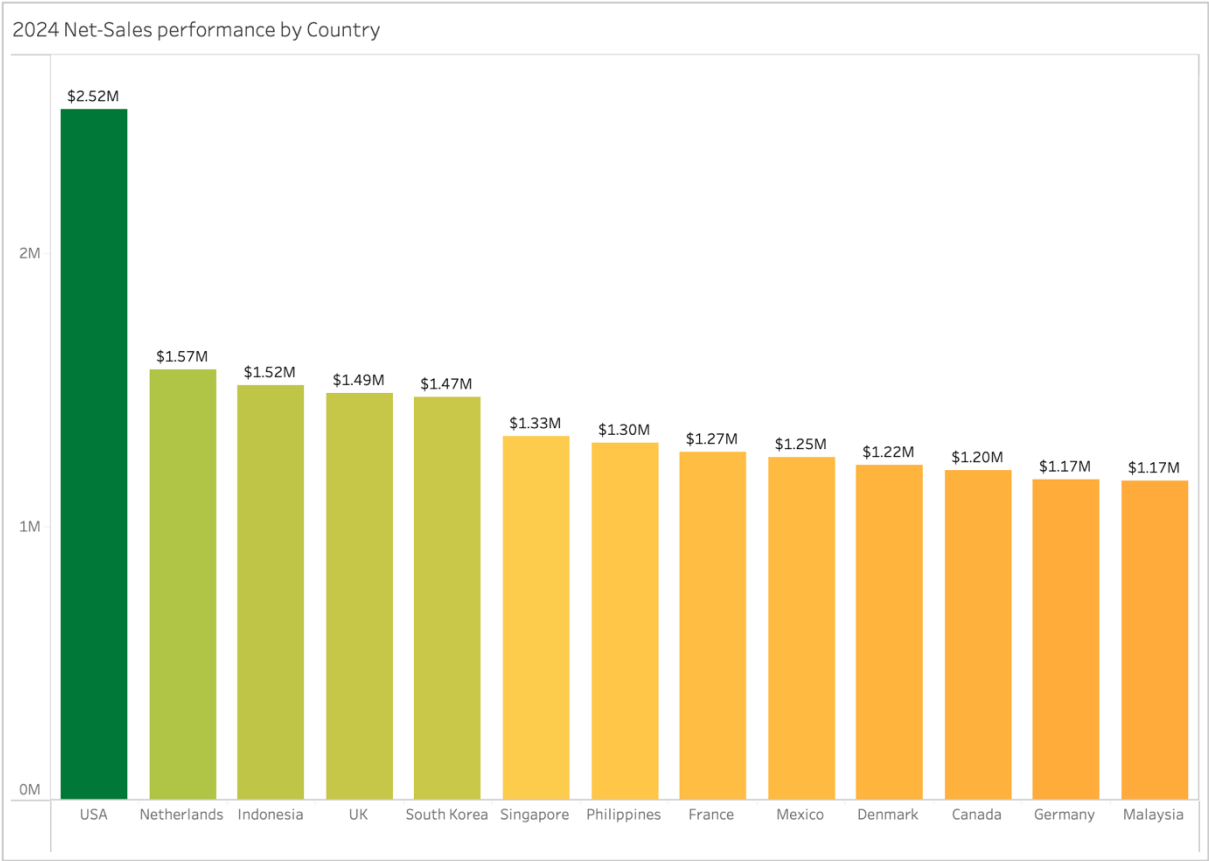
EON's most successful market in 2024 was the United States, which generated $2.52M in net sales, significantly surpassing all other regions (Marklines, 2023). Key markets, including the Netherlands ($1.57M) and Indonesia ($1.52M), showed robust performance; however, they are still behind the United States. The necessity of targeted strategies in high-potential markets is underscored by EON's resilient global presence, which is characterised by competitive sales in multiple regions.

Insight 3 – Sales by Car Segment 2019-24

Sales Volume by Segment 2019-24
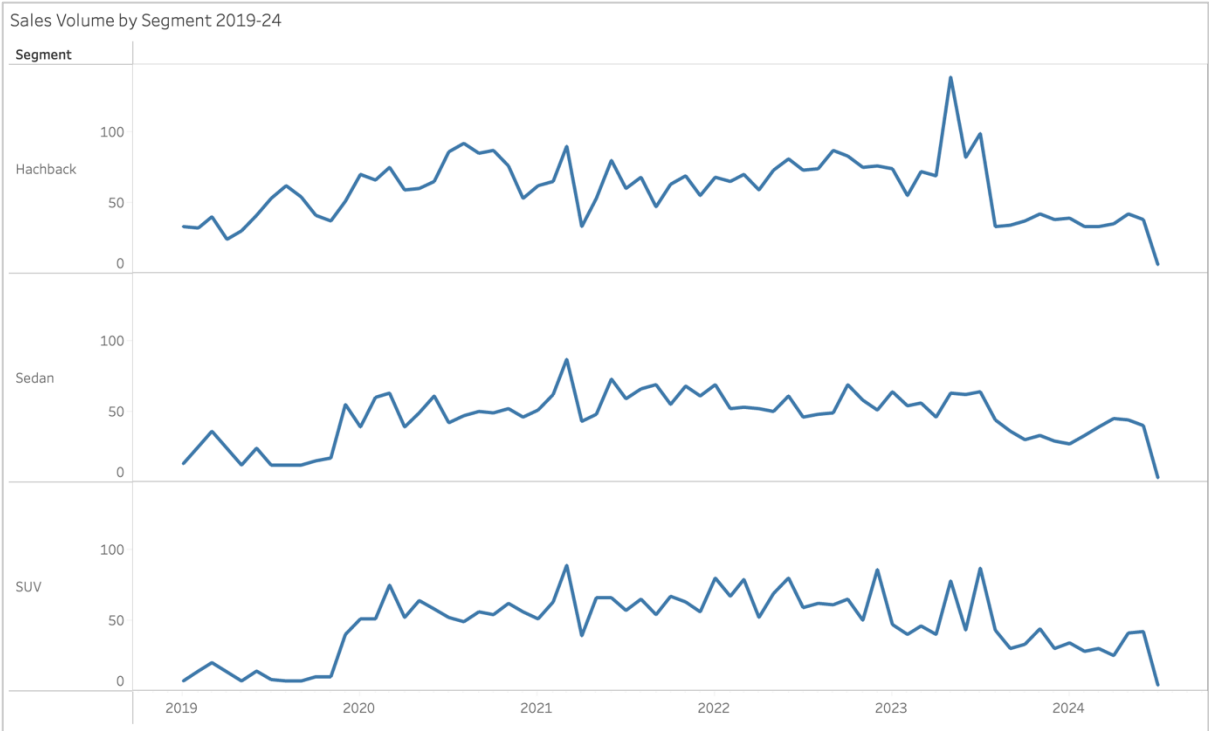
The sales volume analysis from 2019 to 2024 emphasises three critical product segments: Hatchback, Sedan, and SUV. Diverse trends are demonstrated by each segment:

Hatchback sales showed a consistent performance with unusual fluctuations, reaching its peak in early 2023, and later declining gradually in 2024. Sedan sales experienced incremental growth with minimal fluctuations, reaching a peak in 2023 and later declining in 2024. Sales of SUV experienced a substantial increase from 2019 to 2021, followed by a period of stability. However, all segments experienced a substantial decline in 2024. These trends indicate a potential market transition, which may require strategic modifications to product offerings or marketing strategies to promote future growth (Greenpeace, 2023).

Insight 4 – Sales Vs Revenue by Model

Sales VS Revenue by Model
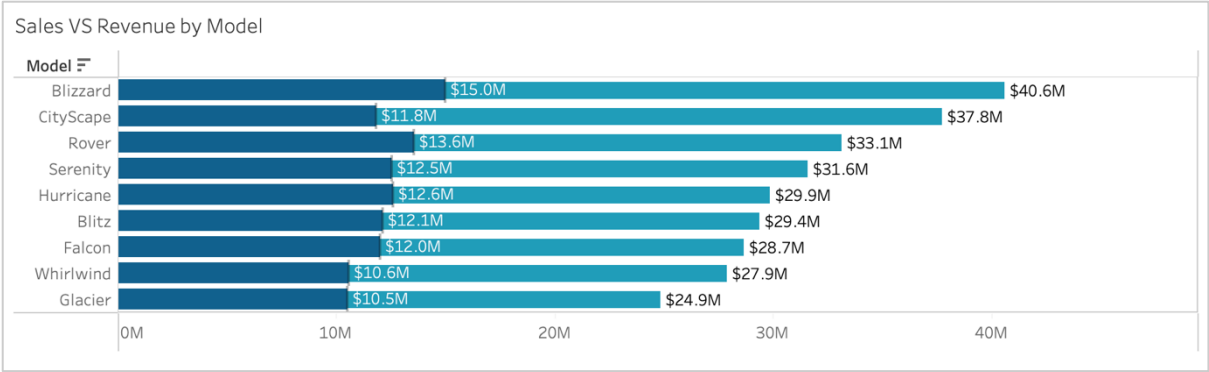
Blizzard, EON's most successful model, generated $40.6M in revenue and $15M in sales, surpassing all other models. The robust demand for premium models was underscored by CityScape, which generated $37.8M in revenue and $11.8M in sales. Rover ($33.1M) and Serenity ($31.6M) demonstrated a balanced revenue and sales performance. Whirlwind and Glacier, generated $27.9M and $24.9M, respectively. This suggests that marketing modifications are necessary to increase sales volume. EON's emphasis on premium pricing and product strategy has proven advantageous, as it has the potential to expand in the mid- to lower-tier segments.

Insight 5 – Top 3 Model in Region by Revenue
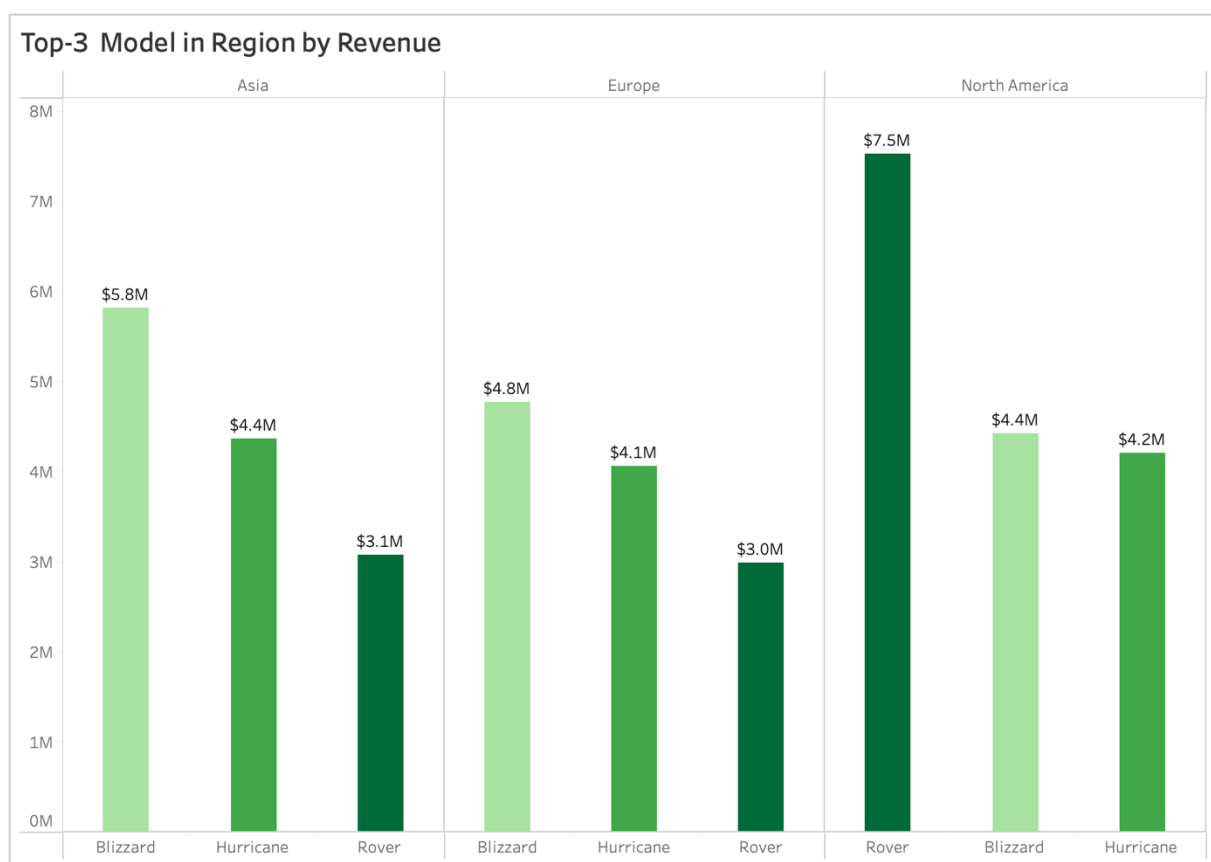
The chart indicates that the model's efficiency varies significantly across various regions. Rover is the market leader in North America, with a revenue of $7.5M, indicating a robust market presence in contrast to other regions where Rover's performance is less dominant (Market Future Insights, 2024). Blizzard secures its status as a top-performing model across numerous markets by generating $5.8M in Asia and $4.8M in Europe, showing its wide popularity. Hurricane consistently ranks among the top three models in all regions, indicating a consistent level of demand on a global scale. These regional preferences indicate

that, despite the exceptional performance of certain models in specific markets, there is a necessity for customised marketing strategies to improve performance on a global scale.

Insight 6 – Sales by Car Segment 2019-24
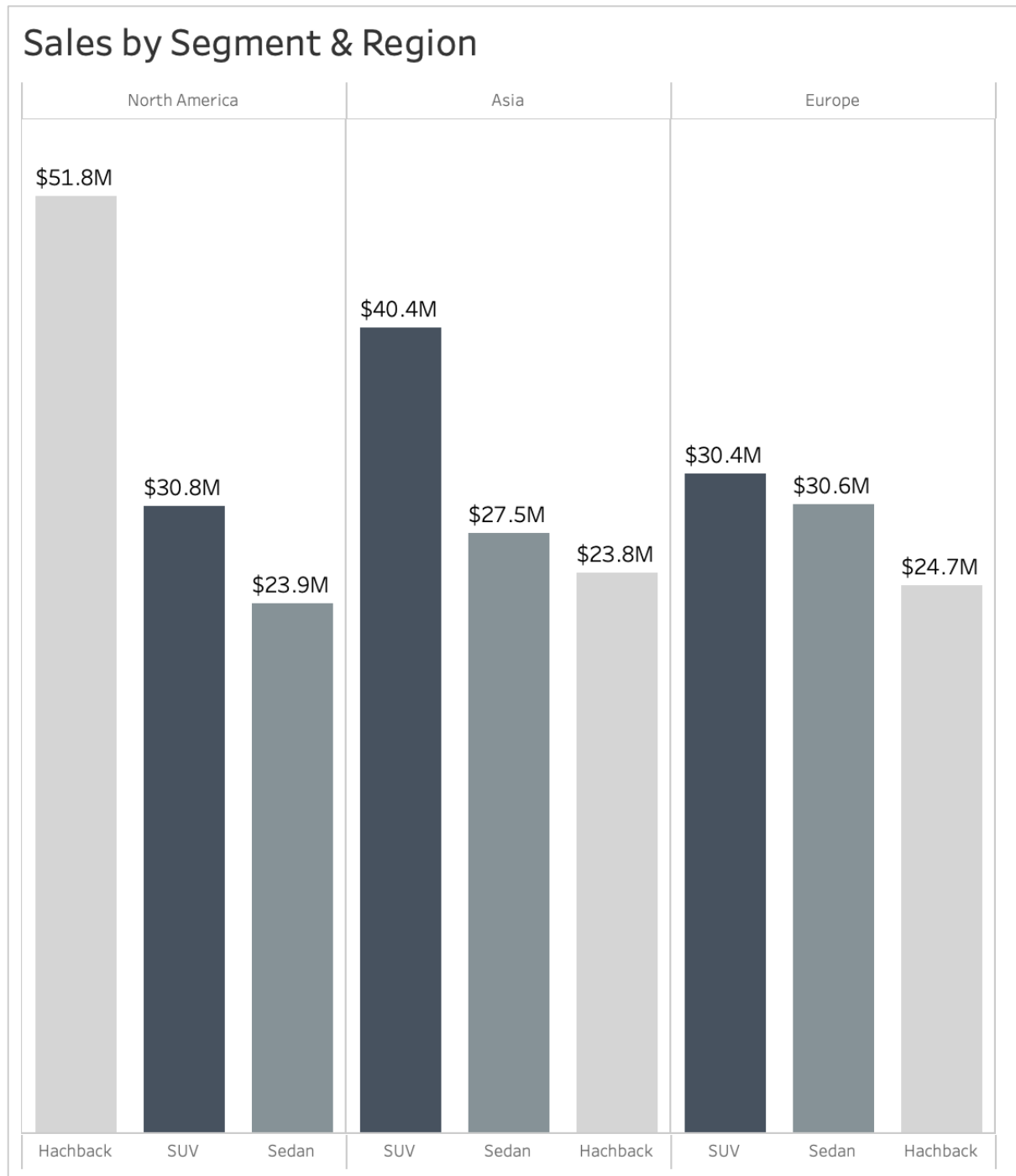
Regional vehicle preferences have been highlighted in the "Sales by Segment & Region" chart. Hatchbacks are the most popular with a sales volume of $51.8M in North America, while SUVs are the most popular in Asia with a sales volume of $40.4M. European demand is balanced, with sedans and SUVs generating revenues of $30.4M and $30.6M,

respectively (Gnaticov, 2020). The data indicates that hatchbacks are the preferred vehicle in North America, SUVs are the preferred vehicle in Asia, and both sedans and SUVs are equally popular in Europe. To optimise these market-specific preferences, regional strategies should be customised.

Recommendation

It is clear from the analysis that regional preferences vary significantly. North America prefers hatchbacks, Asia has a preference for SUVs, and Europe has a balanced demand for both sedans and SUVs. Rover and Blizzard are models that are successful in multiple regions; however, Hurricane and Rover are localised models that are dominant in specific markets.

- Expand Hatchback offerings in North America to capitalize on high demand.
- Increase the production of SUVs in Asia, where there is the greatest demand.
- In Europe, the demand for sedans and SUVs is nearly equal, so it is important to diversify the product variety.
- Formulate marketing strategies that are tailored to the preferences of the local community to achieve the most effective growth.
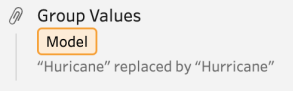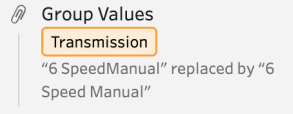
Conclusion
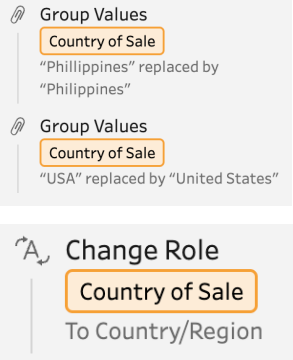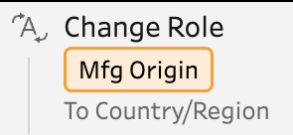
In summary, the analysis demonstrates that there are different regional preferences in vehicle segments. North America has a preference for hatchbacks, Asia has a preference for SUVs, and Europe has a balanced demand for both sedans and SUVs. The potential for targeted growth is underscored by the success of models such as Rover and Blizzard in various regions. In order to leverage these insights, the company should diversify its product lineup in Europe, increase SUV production in Asia, and expand its hatchback offerings in North America. In order to address local preferences and drive future development, EON will need to implement customised marketing strategies, which will guarantee its continued success in a global automotive market that is incredibly competitive.

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References
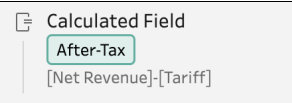
Arthur, J. L. (2024, March 14). *Key Manual vs Automatic Transmission Statistics Every Driver Needs to Know (2024)*. LookupAPlate. https://www.lookupaplate.com/blog/manual-vs-automatic-transmission-statistics/#:~:text=Automatic%20transmission%20cars%20held%20the
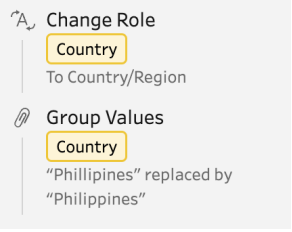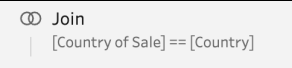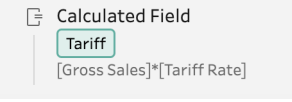
Gnaticov, C. (2020, March 28). *Global Sales Of Sedans, Wagons And Hatchbacks Lose Further Ground To SUVs | Carscoops*. Carscoops. https://www.carscoops.com/2020/03/global-sales-of-sedans-wagons-and-hatchbacks-lose-further-ground-to-suvs/

Greenpeace. (2023, November 29). *Growth in SUV sales offsets climate progress for Toyota, Volkswagen and Hyundai*. Greenpeace East Asia. https://www.greenpeace.org/eastasia/press/8310/growth-in-suv-sales-offsets-climate-progress-for-toyota-volkswagen-and-hyundai/

Gupta, A. (2022, August 29). *The 6 Dimensions of Data Quality*. Collibra. https://www.collibra.com/us/en/blog/the-6-dimensions-of-data-quality

Market Future Insights. (2024, July 19). *Space Lander and Rover Market Key Trends: The Space Lander and Rover market is expected to grow substantially from 2023 to 2031, with a projected Compound Annual Growth Rate (CAGR) of 9.59%.*Linkedin.com. https://www.linkedin.com/pulse/global-space-lander-rover-market-share-thriving-wgyee/

Marklines. (2023). *USA - Flash report, Automotive sales volume, 2022 - MarkLines Automotive Industry Portal*. Www.marklines.com. https://www.marklines.com/en/statistics/flash_sales/automotive-sales-in-usa-by-month

Appendices

Appendix A – Data Quality Assessment changes

Field	Changes Made	Screenshots
VIN#	**Duplicated Excluded** Excluded 3 exact matched rows & Excluded 9 duplicate VIN # rows.	1X5GW6E34DY631314 1X5GW2E34DY636196 1X5VV4E34DY674335 ML9VV4E34DY943846 1X5VV4E34DY982803 ML9GW5E34DY476318 1X5GW6E34DY633172 ML9GW2E34DY469059 ML9VV4E34DY894183 1X5GW6E34DY634730 1X5GW6E34DY638073 1X5GW6E34DY638944
Model	**Group Values** "Huricane replaced by "Hurricane"	Group Values Model "Huricane" replaced by "Hurricane"
Transmission	**Group Values** "6 SpeedManual" replaced by "6 Speed Manual"	Group Values Transmission "6 SpeedManual" replaced by "6 Speed Manual"
Country of Sale	**Group Values** "Phillippines" replaced by "Philippines" "USA" replaced by "United States" **Replace Values** United States and United Kingdom Changed to USA and UK respectively. **Change Role** To Country/Region	Group Values Country of Sale "Phillippines" replaced by "Philippines" Group Values Country of Sale "USA" replaced by "United States" Change Role Country of Sale To Country/Region
Mfg Origin	**Change Role** To Country/Region	Change Role Mfg Origin To Country/Region
Gross Sales	**Round** decimal point to 2.	

	(Using calculated field created a new column with ROUND function, then deleted previous field)	
Variable Marketing	**Round** decimal point to 2. (Using calculated field created a new column with ROUND function, then deleted previous field)	
Net Sales	**Round** decimal point to 2. (Using calculated field created a new column with ROUND function, then deleted previous field)	
Variable Cost	**Round** decimal point to 2. (Using calculated field created a new column with ROUND function, then deleted previous field)	
Contribution Margin	**Round** decimal point to 2. (Using calculated field created a new column with ROUND function, then deleted previous field)	
Other Costs	**Round** decimal point to 2. (Using calculated field created a new column with ROUND function, then deleted previous field)	
Net Revenue	**Round** decimal point to 2. (Using calculated field created a new column with ROUND function, then deleted previous field)	
Auto/Manual	**New calculated field** Using TRIM, extracted Auto and Manual for comparison. **Rename Field** To Auto/Manual	Calculated Field [Transmission - Split 1] TRIM(SPLIT([Transmission], " ", -1)) Rename Field [Auto/Manual] From [Transmission - Split 1] to [Auto/Manual]

Country	**Change Role** To Country/Region **Group Values** "Phillippines" replaced by "Philippines"	Change Role `Country` To Country/Region · Group Values `Country` "Phillipines" replaced by "Philippines"
EON + Tariff	**Join** Join the tables for data calculation	Join [Country of Sale] == [Country]
Tariff	**New calculated field** =(Gross Sales)*(Tariff Rate)	Calculated Field `Tariff` [Gross Sales]*[Tariff Rate]
After-Tax	**New calculated field** =(Net Revenue)-(Tariff)	Calculated Field `After-Tax` [Net Revenue]-[Tariff]
Main Issues	**New calculated field** Using TRIM calculated common issues suffix. E.g.- Tire Rim Defects and Wipes Blades Defects to Defects **Group Values** Issues Replaced by "Battery Issues" due to TRIM.	Calculated Field `Main Issues` TRIM(SPLIT([Issues], " ", -1)) · Group Values `Main Issues` "Issues" replaced by "Battery Issues"